



## Product Information

### POLYOXYETHYLENE 10 OLEOYL ETHER Sigma product number P6136

**CAS NUMBER:** 9004-98-2

**SYNONYMS:** Brij 96<sup>1</sup>; Brij 97<sup>1</sup>; Oleth-10; C<sub>18:1</sub>E<sub>10</sub>

**STRUCTURE:** C<sub>18</sub>H<sub>35</sub>-O-(CH<sub>2</sub>CH<sub>2</sub>)<sub>x</sub>H; x ≈ 10

#### PHYSICAL DESCRIPTION:

Appearance: white to pale yellow liquid or semi-solid

Molecular weight: estimated as 710

Pour point: approx. 50°F (10°C) for Brij 97 (16°C for Brij 96)<sup>3</sup>

HLB value (calculated): 12.4

Critical micellar concentration (CMC): 0.029% (w/v)

Specific gravity: 1.0 at 25°C

Viscosity: approx. 100 cps at 25°C

#### STABILITY / STORAGE AS SOLD:

The product is stable for years at room temperature if protected from oxidation. Over time, particularly at high temperatures, an ether linkage may be subject to oxidation to form peroxides. Although prior to 1991 this product contained a small amount of citric acid or BHA as antioxidant, it no longer contains antioxidants.<sup>3</sup>

#### SOLUBILITY / SOLUTION STABILITY:

Sigma tests this product in ethanol, obtaining a clear colorless to faint yellow solution. It is reported to be soluble in water, propylene glycol and ethanol, soluble (with haze) in mineral oil, and dispersible in cottonseed oil.<sup>3</sup>

Aqueous solutions at 1% and 2% (w/v) were refrigerated for 20 hours with no evidence of precipitation.<sup>3</sup> It is believed that the addition of salts may significantly affect the solubility of Brij 97. Sigma customers have reported that Brij 97 is not as soluble in buffers at 2-8°C as was Brij 96.<sup>4</sup>

Solutions are reasonably stable at room temperature and should be stable under autoclaving conditions for a short time. Extended heating in the presence of oxygen is not recommended. Just as for the solid, solutions are subject to oxidation over time.

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**GENERAL REMARKS:**

Brij detergents are nonionic surfactants generally called polyoxyethylene (POE) ethers. In general, increasing alkyl group length will decrease water solubility, increasing length of POE will increase water solubility. Brij 97 has been used for protein solubilization in biochemical applications.

Some customers have reported differences in solubility between (now deleted) Brij 96 and the product Brij 97 now offered, even though the new product was intended to be an improved preparation. Brij 98 (Sigma's P5641) is suggested as an alternative that is more soluble in water.

An information sheet with comparative data for the entire BRIJ detergent series is available on request.

**REFERENCES:**

1. BRIJ is a registered trademark of ICI Americas, Inc. ICI has retired the name Brij 96, offering Brij 97 with the same specifications.
2. Supplier data or Sigma Material Safety Data
3. Supplier information.
4. Sigma records.